May 23, 1967 G. W. COLLINS 3,320,679

HAIR DRYING DEVICE

Filed Jan. 8, 1964 2 Sheets-Sheet 1

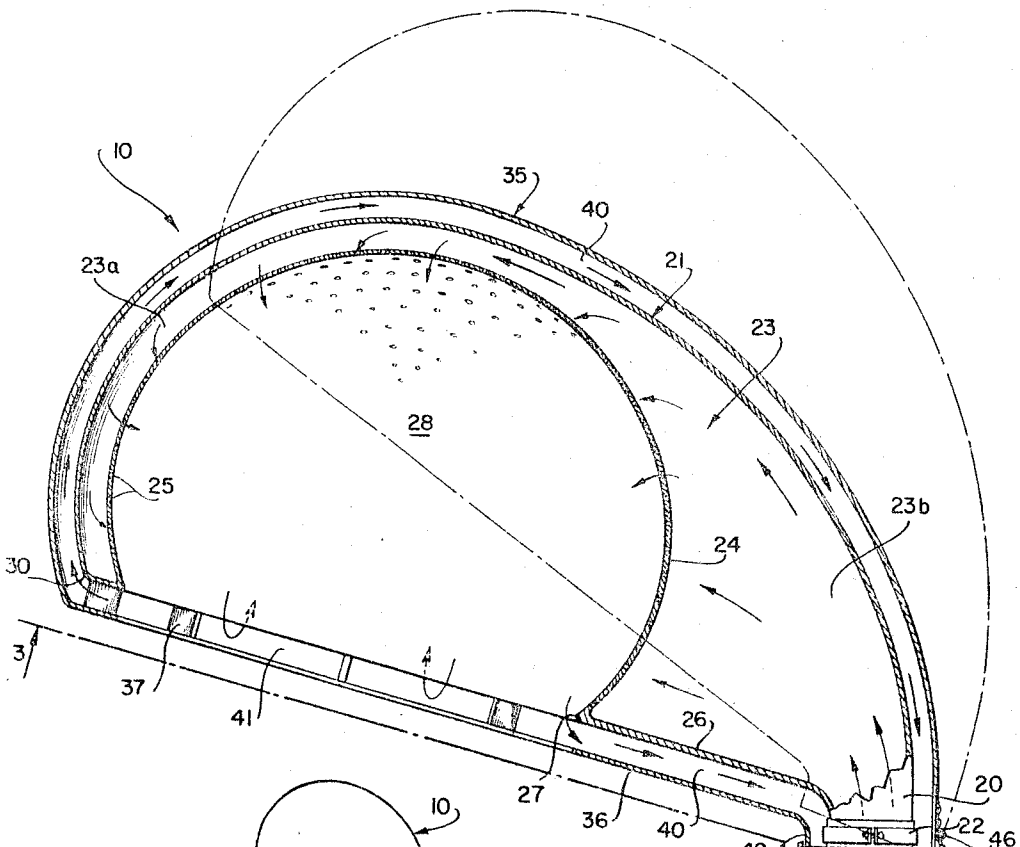


FIG_2

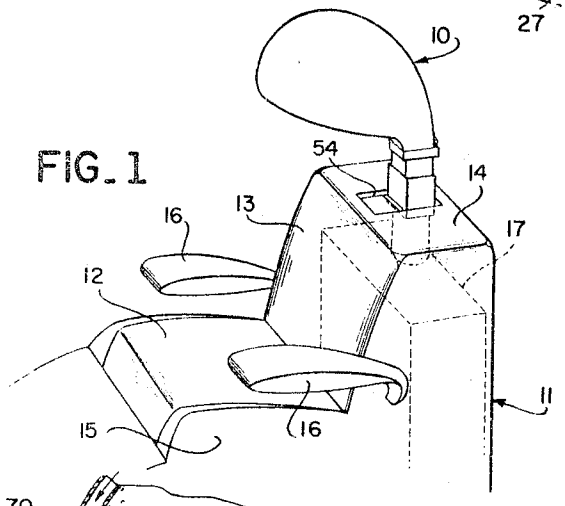


FIG_1

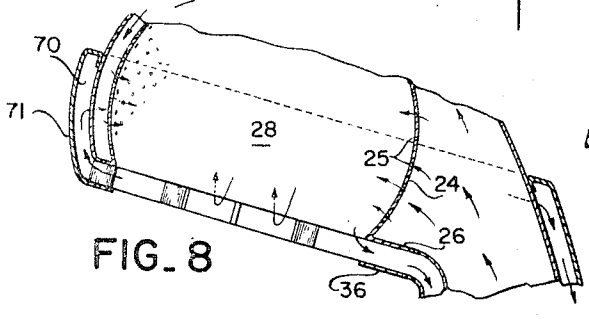


FIG_8

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HAIR DRYING DEVICE

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FIG_3

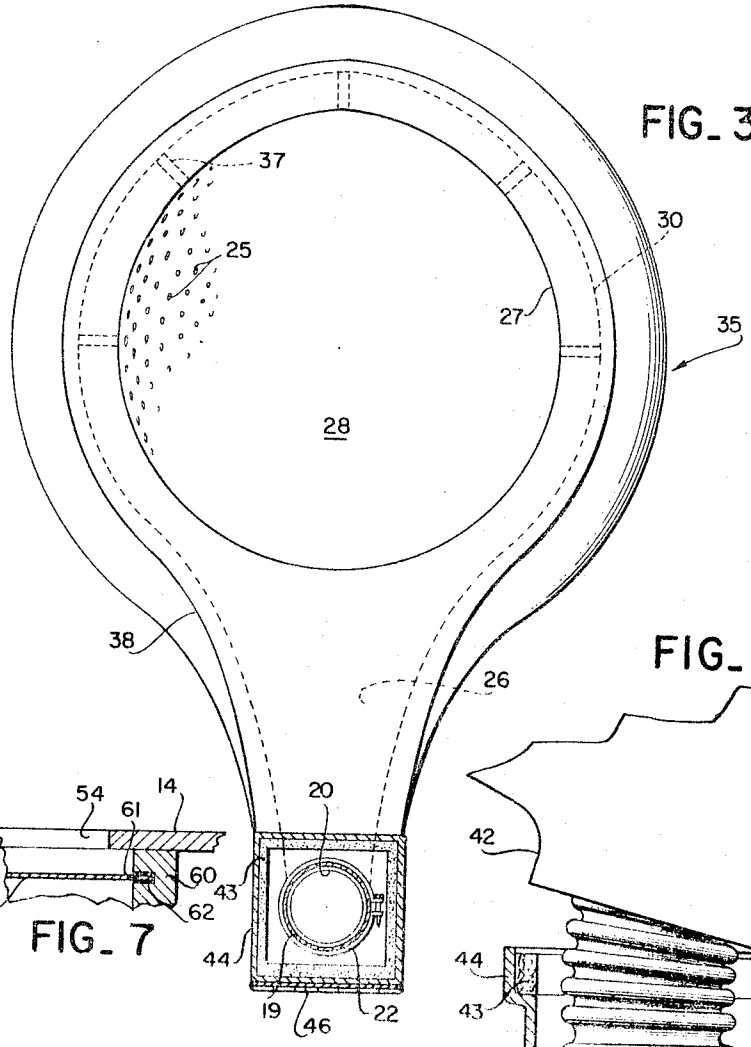


FIG_7

FIG_4

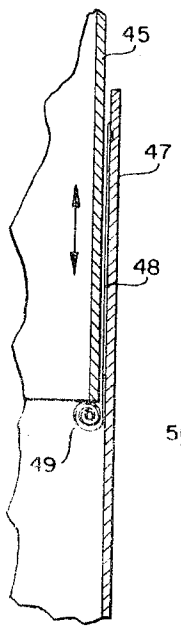


FIG_6

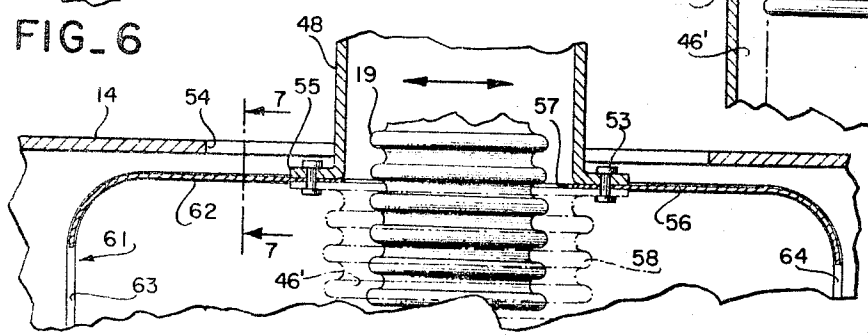


FIG_5

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3,320,679

HAIR DRYING DEVICE

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Filed Jan. 8, 1964, Ser. No. 336,413
10 Claims. (Cl. 34—99)

This invention relates to a hair drying device and more particularly to a hair drying device having a drying hood which directs dry, warm air directly against the hair while permitting adjustment of the hood position for the comfort of the patient.

Drying hoods which have been proposed for use with conditioned air have not provided for even distribution of the conditioned air over the entire surface of the hair for uniform drying. Also, such hoods have been clumsy to use and have not been adjustable to fit the customers head to insure maximum drying efficiency of the conditioned air.

The hair drying device of the present invention provides a drying hood connected to an air conditioning unit through a flexible conduit system which permits the drying hood to be precisely positioned around the hair. The hood projects over the seat on which the customer sits and is movable vertically and laterally relative to the seat for proper adjustment. The air is distributed to the hair through a perforated inner shell which surrounds the hair and is positioned close to the hair. A conditioned air manifold surrounds the shell and connects with the conduit system. After passing through the hair, the air enters a return passage having a circular inlet just below the bottom edge of the hood so that a minimum of atmospheric air is mixed with the return air. By returning the air to the air conditioning unit, the load on the unit can be decreased when the temperature and humidity of the returned air is more favorable than for that of atmospheric air.

It is therefore an object of the present invention to provide a hair drying device in which conditioned air is supplied from an air conditioning unit uniformly over the hair.

Another object of the invention is to provide a hair drying device having a hood which is adjustable with respect to the head to insure proper positioning of the hood.

A further object of the invention is to provide a hood for a hair drying device which has a perforated inner shell adjacent the hair and surrounded by a manifold connected with conditioned air.

Another object of the invention is to provide a hood for a hair drying device in which the air leaving the hood enters the inlet to a return passage which is located around the lower edge of the hood.

These and other objects of the invention not specifically set forth above will become readily apparent from the accompanying description and drawings in which:

FIGURE 1 is a perspective view of the hair drying device of the present invention showing the drying hood located above the customer's seat.

FIGURE 2 is a vertical section of the hair drying device showing the drying hood and adjustable support therefor.

FIGURE 3 is a bottom plan view along line 3—3 of FIGURE 2 showing the interior of the drying hood.

FIGURE 4 is a partial vertical section, in the plane of FIGURE 2, illustrating the hinge connection of the hood to the vertical conduit leading to the air conditioning unit.

FIGURE 5 is a partial section, in the plane of FIGURE 2, showing the horizontally adjustable support for the conduit leading to the air conditioning unit.

FIGURE 6 is a partial section, in the plane of FIGURE 2, illustrating the coiled plate for adjusting the vertical position of the hood.

FIGURE 7 is a transverse vertical section along line 7—7 of FIGURE 5 showing the slidable horizontal mounting; and

FIGURE 8 is a sectional view of a modification of the drying hood showing an annular manifold for return air.

The embodiment of the present invention chosen for purposes of illustration consists of a drying hood **10** positioned above a supporting base including a customer's chair **11** having a seat **12**, a seat back **13**, a top panel **14**, side panels **15** and arms **16**. An air conditioning unit **17** is located within the chair **11** for supplying dry, warm conditioned air to the hood **10** but otherwise forms no part of the present invention. The condition of the air leaving the conditioning unit **17** can be adjusted to a low humidity and to a maximum temperature compatible with comfort so that fast drying of the hair can be accomplished. An air conditioning unit suitable for such operation is shown in my copending application Ser. No. 313,073, filed Oct. 1, 1963.

The conditioned air leaves the unit **17** through a flexible, corrugated passage **19** and the end of the passage is secured around a circular inlet port defining end **20** of a dome shaped intermediate member **21** by a bracket **22**. The member **21** surrounds an inner shell member **24** to provide a manifold space **23** therebetween. The shell member **24** is in the shape of a partial sphere containing a multiple of small circular openings **25** and is supported by bottom plate **26** of member **21** which contains a circular opening **27**. The edge of opening **27** is integral with the lower edge of the shell **24** so that the head of the customer can be inserted into the interior space **28** of the inner shell through the opening **27**. The outer edge **30** of bottom plate **26** is spaced from opening **27** in order to close the space **23** and direct the conditioned air through the opening **25**. The front portion **23***a* of manifold **23** has the minimum width and the rear portion **23***b* converges toward end **20**.

An outer dome shaped member **35** surounds member **21** and has a lower wall or bottom **36** spaced from bottom **26** of member **21** by a plurality of edge spacers **37**. Bottom **36** has an opening aligned with the bottom opening **27** of shell member **24**. The space **40** between members **21** and **35** and between bottom plates **26** and **36** comprises the return manifold for air leaving the space **28** within shell **24**. The edges of the shell opening **27** and the underlying opening in bottom **36** define therebetween an inlet **41** to the space **40**. The outer member **35** and its bottom plate **36** terminate in a square annular outlet port defining end **42** having a lower seating face which normally rests on the upper seating face of a flexible sealing material **43** contained in an enlarged end recess **44** of square conduit **45** (see FIGURE 4). A hinge **46** has portions connected to end **42** and to enlarged end **44** so that the complete hood **10** can be rotated upwardly into the dotted line position of FIGURE 2 and thereafter dropped downwardly to a position of use around the head of a customer disposed on seat **12**. During movement of the hood, the passage **19** will flex, as shown in FIGURE 4, and when the hood is in the down position, the return space **40** is in communication with return passage **46'** located between conduit **45** and corrugated passage **19**.

The end of conduit **45** fits snugly into the end of square conduit **47** which contains a thin sheet of spring metal **48** which is secured at its upper end to the interior of one side of conduit **47**. The metal sheet **48** tends to roll up at the end **49** which engages and supports the end of conduit **45**. By pushing downwardly on hood **10**, the end **49** will unroll until the downward force is removed and the

end will thereafter support the hood in a lower position. When the hood **10** is lifted upwardly, the end **49** will roll up and follow the end of conduit until the lift force is removed so that the end **49** will thereafter support the hood in a raised position. Thus, the hood **10** can be fixed in a vertical position which will place the head of the customer snugly within space **28** after the hood is rotated down over the head about hinge **46**. The passage **46'** continues between conduit **47** and passage **19** and because of the thinness of sheet **48**, no substantial leakage of return air to atmosphere will result between conduit **45** and **47**.

The end of conduit **47** passes through a rectangular opening **54** in the top panel **14** of chair **11** and has a flange **55** secured by bolts **53** to one side of a flexible slide plate **56** at a location surrounding a circular opening **57** in the plate. A flexible corrugated conduit **58** is secured to the other side of the plate **56** around the opening **57** by bolts **53** to provide an extension of conduit **47** leading to the air conditioning unit **17**. The conduit **19** extends through conduit **58** to extend the return air passage **46'** to the unit **17**. The plate **56** extends across opening **54** and is supported at its edges by a pair of vertical panels **60** extending along opposite sides of opening **54** with the upper edge of each panel secured to top panel **14**. Each panel contains a groove **61** which has a horizontal portion **62** under opening **54** and two vertical end portions **63** and **64** and each groove **61** receives an edge of plate **56**. Since the conduits **19** and **58** and plate **56** are flexible, the conduit **47** can be moved horizontally in opening **54** for adjustment of hood **10** relative to the head of the customer and the edges of plate **56** will move in grooves **61** to support the hood in its various adjusted positions.

In operation of the hair drying device, the customer is first seated in chair **11** and the hood **10** is adjusted above the head of the customer by moving conduit **45** within conduit **47**. The hood is then positioned horizontally over the head of the customer by movement of flexible sheet **56** which supports conduit **47**. Thereafter, the hood is lowered into drying position over the head of the customer. At any time after adjustment, the hood can be easily removed from the head by rotation about the hinge **46** so that the customer can leave the chair and return without the necessity of further adjustment. With the unit **17** in operation, dry warm air received in manifold **23** from passage **19** surrounds the inner shell **24** adjacent the hair and the air moves uniformly against the hair through the many openings **25** uniformly distributed in shell **24**. Thus, the hair will be dried uniformly because of the even distribution of air and because the hood **10** can be uniformly positioned around the head by use of the various position adjustments. Also, because of the uniform positioning of the hood over the head, the maximum amount of air leaving the inner shell will enter the return inlet **41** for reconditioning in unit **17**. The fan in the unit **17** will serve to draw the air into the inlet **41**.

A modification of the hood is shown in FIGURE 8 wherein the outer member **35** is replaced by an annular return manifold **70** formed by bottom plate **36** and an outer shell **71** extending around the lower portion of member **21**. The shell **71** is shaped to connect with hinge **46** and conduit **45** in the same manner as member **35**. This form of the invention requires less material and is lighter. While it is preferable to return the discharge air to the conditioner unit, the outer member **35** could be eliminated so that the air would discharge directly to atmosphere. It is also apparent that the adjustable connections for supporting the hood can be varied while providing the same degrees of movement of the hood. Various other modifications are contemplated by those skilled in the art without departing from the spirit and scope of the invention as hereinafter defined by the appended claims.

What is claimed is:

1. A hair drying device utilizing conditioned air from an air conditioning unit comprising:
- a hood support including a horizontal slide plate mounted for edgewise movement;
- a hood having a cavity for receiving a head of hair;
- means mounting said hood on said support above said slide plate for horizontal movement with said plate;
- a flexible conduit secured to the underside and extending downwardly from said slide plate; and
- there being passage means communicating said hood cavity and conduit through an opening in said slide plate.

2. A hair drying device according to claim **1** wherein:
- said hood mounting means comprise hinge means supporting said hood for vertical swinging movement between a lower position of use and an upper retracted position;
- said hood and hood support have confronting seating faces which engage to vertically support said hood when the latter occupies said position of use;
- said passage means opening through said seating faces, respectively; and
- said seating faces when disposed in seating contact providing a substantially airtight seal about said passage means.

3. A hair drying device according to claim **2** wherein:
- said passage means comprise return passage means for conveying air from the said cavity to said conditioning unit; and
- flexible conduit means secured to said hood in communication with said cavity and extending downwardly from said hood through said passage means for conveying conditioned air from said conditioning unit to said hood.

4. A hair drying device utilizing conditioned air from an air conditioning unit comprising:
- a hood having an inner shell member defining a partial spherical cavity for receiving a head of hair and containing a plurality of openings; said inner member having a bottom opening for insertion of the hair into said cavity;
- an intermediate member surrounding said inner member and spaced therefrom to form a closed manifold space completely surrounding said inner member;
- passage means for directing dry warm air from said conditioning unit to said manifold space at a location to one side of said cavity, said air passing through all of said openings into contact with said hair for uniformly drying said hair;
- an outer member positioned around said intermediate member and spaced therefrom to form a return manifold for air leaving the hair through said bottom opening; and
- conduit means surrounding said passage means for providing a return passage therebetween for the return air, said conduit means comprising a flexible conduit section and a rigid conduit section connected end to end, and horizontally slidably means connected with the junction of said sections and supporting said hood for horizontal movement.

5. A hair drying device as defined in claim **4** wherein said rigid conduit section comprises a plurality of overlapped conduit sections slidable relative to one another, and means for holding said section in a selected relationship for providing a desired hood height.

6. A hair drying device as defined in claim **4** wherein said one side of conduit means is hinged to said outer member for pivotal movement of said hood away from said hair.

7. A hair drying device utilizing conditioned air from an air conditioning unit comprising:
- a rigid hood having a normally bottom side, a forward cavity opening through said bottom side for receiving a head of hair, and a rear bottom port opening

through said bottom side and communicating with said cavity;

a supporting base below said hood;

upright hood supporting means rising from said base;

hinge means pivotally mounting said hood on the upper end of said supporting means for vertical swinging movement of said hood between a lower position of use and an upper retracted position about an axis located at the rear of said hood;

coacting means on said hood and supporting means for vertically supporting said hood in said position of use;

a flexible conduit extending generally vertically between said base and hood and secured at its upper end to said hood with the passage in said conduit communicating to said port for conducting conditioned air between said conditioning unit and hood;

the axis of said port being substantially vertical when said hood occupies said position of use, whereby the entire conduit portion between said hood and base is generally straight when said hood occupies said position of use and said conduit is vertically stretched and only slightly bent when said hood is raised to said retracted position.

8. A hair drying device according to claim **7** wherein:

said hood includes an annular bottom port communicating with said cavity and opening through said bottom side of said hood in surrounding relation to said flexible conduit;

means defining an annular passage surrounding said flexible conduit and opening at its upper end toward said annular port;

said coacting means comprise confronting seating faces on said hood and supporting means, respectively, which engage when said hood occupies said position of use, the seating face on said hood surrounding said annular port and the seating face on said supporting means surrounding the upper end of said annular passage;

said seating faces when in seating contact providing a substantially airtight seal between said annular port and said annular passage; and

one of said passages being an inlet passage for directing conditioned air from said conditioning unit to said hood and the other passage being a return passage for returning air from said hood to said conditioning unit.

9. A hair drying device according to claim **7** wherein:

said supporting means is vertically adjustable to vary the elevation of said hood; and

said entire conduit portion undergoes vertical elongation and contraction during vertical adjustment of said supporting means as well as during swinging movement of said hood between said positions thereof.

10. A hair drying device according to claim **7** wherein:

said supporting means comprise horizontally adjustable means for adjusting said hood in the fore and aft direction relative to said base; and

said conduit undergoes lateral deflection during horizontal adjustment of said supporting means.

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